

## **INITIAL STATEMENT OF REASONS**

### **Water Recycling**

#### **Chapter 3. Water Recycling Criteria**

Pursuant to section 13521 of the California Water Code, The Department of Health Services (Department) is mandated to establish statewide recycling criteria for each varying use of recycled water where such use involves the protection of public health. In addition, the use of the term “recycling” in this section provides the authority for the proposed substitution of terms in the attached regulations: “Reclamation” and “reclaimed” would be replaced with “recycling” and “recycled”.

The existing recycling criteria were adopted by the Department on October 15, 1977. Since that time, the use of recycled water has expanded significantly. Furthermore, technical and health effects studies, have been conducted and advances in treatment technology have been demonstrated. Also during this period, the increasing need for water conservation and the increase in potable water demand have created a greater need for more recycling and reuse of wastewater.

Pursuant to the authority granted by section 13521 of the Water Code, the Department has developed proposed revisions to the existing recycling regulations. These revisions are intended to expand the range of allowable uses of recycled water, establish criteria for these new uses, and clarify some of the ambiguity contained in the existing regulations.

#### **Article 1. DEFINITIONS**

##### **Section 60301. Definitions.**

Existing section 60301 would be repealed and new sections 60301.100 through 60301.920 would be adopted. The existing section 60301 would be reorganized with new section numbers and the definitions placed into alphabetical order.

The terms in existing subsections (a), (g), (k), (l), (m), (o), (p), (s), (t), (v), (w), (x), (y), (z), (aa), and (bb) are no longer used or necessary or are already defined in law.

Subsection (f) would be amended and redesignated as new section 60301.800. The language would be reworded to clarify that the term "spray irrigation" is limited to crops or vegetation and does not include drip irrigation.

Subsections (h), (I), (j), and (u) would be amended for greater clarity and redesignated as new sections 60301.760, 60301.620, 60301.550 and 60301.830, respectively.

Subsection (q) would be amended and redesignated as new section 60301.160. The wording would be changed to clarify that the coagulation process must take place prior to the filter to assure that particle agglomeration takes place prior to filtration.

Subsection (r) would be redesignated as new section 60301.320. The wording would be changed to remove the clarification unit process requirement from this definition. The existing requirement would be adequately covered by other definitions and is unnecessary. A maximum turbidity limit of 10 NTU would be adopted into the previous definition. The existing definition allows the 2 NTU daily average to be exceeded up to 5 percent of the time. Not specifying an absolute maximum, however, would allow a treatment facility to produce an effluent with unlimited turbidity 5 percent of the time. This could cause the disinfection process to be ineffective for short periods. Imposing a 10 NTU maximum would preclude this possibility while not imposing unreasonable operational restrictions on existing plants. Existing plants that are well operated have demonstrated the capability to meet this requirement consistently. Other minor changes would be made in this section for greater clarity, such as specifying that "of the time" refers to a 24-hour period.

Subsection 60301.320(b) requires the use of filtration technologies with membranes to physically screen particulate matter, including certain pathogens (microfiltration, ultrafiltration,

nanofiltration, and reverse osmosis). Membrane filtration has been demonstrated to achieve virus removal when the turbidity performance objectives in this subsection have been met

Proposed sections 60301.170, 60301.220, 60301.225, 60301.240, 60301.245, 60301.250, 60301.300, 60301.310, 60301.400, 60301.600, 60301.620, 60301.700, 60301.750, 60301.900, and 60301.920 would be adopted to define new general terms used in the proposed regulations.

Proposed section 60301.100 would be adopted to define the term "approved Laboratory" as one which has been certified by the Department. This definition is necessary to assure the validity of the bacteriological results.

Proposed section 60301.230 would be adopted to define a wastewater that has been "adequately disinfected, oxidized, coagulated, clarified, and filtered"; these terms are used in the existing sections 60303 through 60305. This definition contains specific proposed criteria relating to the disinfection process. Existing regulations (sections 60303 through 60317) specify a median concentration of coliform bacteria of 2.2 per 100 milliliters and a maximum of 23 coliform per 100 milliliters which may be exceeded in only one sample within a 30 day period. These bacterial requirements are unchanged in the proposed regulations but are made a part of the definition for greater clarity. The existing regulation does not specify a maximum for the one sample exceedance. The Department believes that this should not be unlimited because it could create a short period of substantial contamination to users. A maximum of 240 MPN has been inserted for the one sample exceedance. This would allow ample operational flexibility without creating an unreasonable risk to the public.

Currently, the term "adequate disinfection" is defined strictly in terms of coliform concentrations. The Department does not believe this provides sufficient reliability for inactivation of viruses. A report on a major study of the effectiveness of wastewater treatment processes in controlling viruses (the Pomona Virus Study) was released in February 1977. That report made specific technical recommendations on minimum disinfection concentration and contact time necessary to control viruses. Since the release of that study the Department has used those recommendations

as the basis for comments to the regional water quality control boards on proposed recycling project requirements, to ensure adequate public health protection when recycled water is used. Proposed section 60301.230, therefore, also adds a requirement for a minimum chlorine concentration versus time (generally referred to as CT values) of 450 based on a minimum 90 minute contact time. These requirements are based on the Department's experience with several demonstration projects (including the 1977 report on the Pomona Virus Study) where these concentrations and detention times were shown to be effective in inactivating viruses and on operational testing data submitted by the Los Angeles County Sanitation Districts. An alternative disinfection method can be used provided that it is demonstrated to be capable of removing or inactivating viruses to a level of 1/100,000 (5 logs) of the initial concentration. The demonstration of a 5 log reduction or use of the specified CT values were determined by the Department to be necessary to assure effective and reliable removal and inactivation of enteric viruses for those uses where the public exposure to the recycled water is exceptionally high.

Sections 60303 through section 60319. These sections would be repealed from title 22, division 4 and new sections 60302 through 60310 would be adopted.

## **ARTICLE 2. Sources of Recycled Water**

### **Section 60302. Source Specifications**

This new section would be adopted to establish that only municipal sewage can be used as a source for recycled water. If this limitation did not exist, any kind of wastewater could be used, including various types of industrial wastewaters; this could result in water quality issues beyond the scope of these regulations.

## **ARTICLE 3. Use of Recycled Water**

### **Section 60303. Exceptions**

This section would be adopted to make it clear that the requirements of this chapter do not apply to onsite use of recycled water at a treatment plant. Many water recycling or wastewater treatment plants utilize treated effluent from the plant for a variety of operational purposes. These operational uses are under the direction of wastewater treatment plant operators who are

knowledgeable and trained in the safe handling of wastewater. Since the primary purpose of these regulations would be to protect the general public who may be unaware of potential hazards, applying them to onsite uses would serve no useful purpose and would unreasonably restrict treatment plant operations.

#### **Section 60304. Use of Recycled Water for Irrigation**

(a) This new section would not substantively change the existing requirements set forth in sections 60303 through 60317 for irrigation of food crops, parks, playgrounds, or schoolgrounds which currently require the use of disinfected tertiary effluent. Residential landscaping and unrestricted access golf course uses would be added to the list of acceptable uses of tertiary recycled water because the risk of public exposure for these uses is comparable to the currently allowed uses. This subsection would permit a recycled water to be produced without the use of chemical coagulation for the uses set forth in this section provided certain turbidity levels were not exceeded. The Department has determined from the Castroville demonstration project and other plant experiences that the disinfection process can be effective for irrigation uses without the need for coagulation as long as the turbidities remain below 5 NTU and the filter effluent turbidity does not exceed 2 NTU. This provision would allow some recycling projects to save treatment costs and still provide a recycled water which is safe for the uses stated in this subsection.

(b) Subsection (b) is the same as section 60305 of the current requirements except that the wording would be modified for greater clarity.

(c) This subsection would be essentially the same as existing requirements (sections 60311 through 60313) except that the requirements would be reorganized and the wording modified for greater clarity.

(d) This subsection would be essentially the same as sections 60307 through 60309 of the existing regulations. Several terms would be changed, wording modified, and the section reorganized for greater clarity. Existing section 60309 requires the use of at least primary

treatment effluent for seed, fodder and fiber crops. While public contact with these types of uses are minimal, contact is still possible by workers and others. Therefore, the Department has determined that this type of effluent should receive oxidation in addition to primary treatment to assure an acceptable minimal quality of recycled water and thereby protect public health ("Review of Health Risks Relating to Ingestion and Inhalation of Constituents of Recycled Water," Department of Health Services 1992, section 2). Primary treatment by itself is rarely practiced in California and the Department is not aware of any recycled water facility that uses only primary treatment without at least also having oxidation ponds. Therefore, this change should not affect any existing operations.

In addition, the use of recycled water for Christmas tree farms would be adopted with the provision that no irrigation with recycled water take place for a period of 14 days prior to harvesting or allowing public access. Based on observations of irrigated sites, the Department has determined that the 14 days allows for sufficient absorption and evaporation of irrigation water to ensure that the public would not be at any risk of exposure to the recycled water used for irrigation.

(e) This subsection is proposed to be added to assure that the public is not exposed to an unreasonable risk of infection due to the eating of food that has come into direct contact with inadequately treated recycled water. The Department has determined ("Review of Health Risks Relating to Ingestion and Inhalation of Constituents of Recycled Water," Department of Health Services 1992) that the highest conceivable probability of contracting a viral intestinal infection from one episode (one day) of eating one meal that includes food that was sprayed with disinfected tertiary recycled water during irrigation is 1 in 100,000. As pointed out in the above referenced document, the Department considers this to be an acceptable level of infectious risk. Since a less treated recycled water (i.e., disinfected secondary-2.2) would create a higher and unacceptable risk of infection, the requirement for use of disinfected tertiary recycled water is proposed.

### **Section 64305. Use of Recycled Water for Impoundments**

(a) The purpose of this subsection would be to set forth the requirement for disinfected tertiary treatment, as defined in section 60301.22 and which has been subjected to conventional treatment, for nonrestricted recreational impoundments in order to provide adequate public health protection from enteric viruses and bacteria. Nonrestricted recreational use of recycled water presents one of the most significant public exposures to the possibility of infection from recycled water due to potential ingestion of the recycled water while swimming. Existing section 60315 requires complete conventional treatment for nonrestricted recreational use but does not define this treatment in the same manner as the proposed regulations.

(b) The purpose of this subsection would be to allow the use of disinfected tertiary recycled water for nonrestricted recreational impoundments in certain circumstances. The Department recognizes that disinfected tertiary treated recycled water (which does not include the sedimentation unit process as part of the treatment chain) has been demonstrated to be equivalent to conventional treatment with respect to removal and inactivation of viruses. However, there is some uncertainty that this type of treatment can reliably produce a pathogen free effluent in all cases. The Blue Ribbon Panel on Assessment of Risk recommended that this type of treatment should be required to demonstrate its treatment effectiveness by means of additional monitoring if the recycled water is intended to be used for nonrestricted recreation. The Department concurred in this recommendation. This subsection sets forth the monitoring that would need to be performed during the first two years of operation if disinfected tertiary recycled water is proposed to be used in lieu of conventionally treated recycled water.

The Department determined that 12 samples of pathogenic organisms taken at monthly intervals followed by quarterly monitoring for at least an additional year would provide sufficient data to establish the effectiveness of the treatment process and also provide valuable data needed to evaluate the health risk associated with the project. Although the purpose of the demonstration would be to establish that the recycled water is essentially free of enteric virus, the advisory panel recommended that monitoring for giardia and cryptosporidium also be performed during this demonstration period as this information would be useful in evaluating the effectiveness of the

treatment process and would be valuable in establishing a possible basis for future standards for these organisms.

(c) The requirement that the coliform densities specified for disinfection shall be met at a point between the disinfection process and the point of entry to the use area is necessary to assure that coliform bacteria are monitored prior to the recycled water being introduced into the actual use impoundment.

(d) This subsection is the same as existing section 60317 for restricted recreational impoundments except that it has been reworded for better clarity. Use of this type of recycled water for fish hatchery impoundments would be adopted since this type of use was not included in existing regulations. The Department has determined that the degree of public exposure to impoundments at a fish hatchery (where such public access is allowed) is similar to a restricted recreational impoundment and a similar treatment requirement is, therefore, warranted.

(e) The requirement of this subsection is the same as existing requirements (section 60303) except for the exclusion of decorative fountains. The Department has determined ("Review of Health Risks Relating to the Ingestion and Inhalation of Constituents of Recycled Water," Department of Health Services 1992) that decorative fountains are capable of producing a mist that can increase the exposure hazard to the public through inhalation and, therefore, requires a higher level of treatment. The treatment requirement for recycled water for use in decorative fountains is specified in section 60306 (a).

#### **Section 60306. Use of Recycled Water for Cooling**

This section is proposed to be added to existing regulations to cover the use of recycled water for cooling purposes. This is a relatively new use of recycled water that was not recognized when the existing regulations were adopted. Cooling towers are generally equipped with drift eliminators to minimize the loss of cooling system water, thereby reducing the necessity to add water to the cooling system; drift eliminators would also provide specific health protective benefits when recycled water is used in cooling towers by minimizing the potential exposure to



microorganisms contained in the droplets of cooling water. The use of drift eliminators is a prevailing practice not primarily necessitated by the use of recycled water for this purpose. The use of recycled water for cooling falls into two categories based on whether or not a mist is produced that could contact members of the public.

(a) The purpose of this subsection would be to set forth the requirement for disinfected tertiary treatment of the recycled water in cooling systems that generally produce a mist (also known as drift) as part of the cooling process. This level of treatment is necessary to ensure that the mist does not pose a potential risk of infection to workers and the public via inhalation or contact with particles that remain in the air after the mist evaporates.

(b) This subsection allows the use of a lesser treated (disinfected secondary-23) recycled water in those situations where the cooling system does not produce a mist. Since there is a lesser likelihood of public contact or inhalation under these circumstances, the Department has determined ("Review of Health Risks Relating to the Ingestion and Inhalation of Constituents of Recycled Water," Department of Health Services 1992, section 3) that use of disinfected secondary-23 recycled water in lieu of disinfected tertiary recycled water provides adequate public health protection.

(c) This subsection adds additional requirements for cooling systems that produce a mist during the cooling process. The subsection requires the use of a drift eliminator whenever the cooling systems is used in conjunction with an air conditioning system. The Department has determined that the requirement to minimize drift is warranted due to the higher risk of inhalation associated with use of recycled water in air conditioning systems ("Review of Health Risks Relating to Ingestion and Inhalation of Constituents of Recycled Water," Department of Health Services 1992, pages 20-26).

The requirement for use of a biocide, such as chlorine, in the operation of the cooling system using recycled water is necessary to assure that pathogenic organisms of wastewater origin do not grow or regrow in the recirculated water. Biocides and other conditioning chemicals are

generally used in recirculating cooling towers regardless of the water source. Since cooling systems operate on a continuous recirculating basis, the lack of disinfectant treatment (such as periodic shock treatment) of the recirculated water could lead to the eventual growth of pathogenic organisms in the recycled water.

#### **Section 60307. Use of Recycled Water for Other Purposes.**

The purpose of this section would be to identify additional uses of recycled water that should be allowed and are not covered by the existing title 22, Division 4 regulations. The uses are broken into two categories, those that have a fairly high potential for public exposure thus requiring a high level of treatment and those with little public exposure thus allowing a lesser degree of treatment.

(a) Each of the uses specified in this subsection are new uses for recycled water that are not covered in the existing title 22, Division 4 regulations. These uses pose as much risk for public contact with the recycled water through direct contact, inhalation, or ingestion, as do those listed in section 60304(a) which require disinfected tertiary treatment to reduce the risk of infection. Therefore, the Department has determined that the recycled water used for these purposes must meet the definition for a disinfected tertiary recycled water in order to avoid unreasonable health risks.

This subsection also permits a recycled water to be produced without the use of chemical coagulation for the uses set forth in this section provided certain turbidity levels are not exceeded. As described under section 60303 (a), the disinfection process can be effective for moderate exposure uses without the need for coagulation as long as the turbidities remain below 5 NTU and the filter effluent turbidity does not exceed 2 NTU. This provision would allow some recycling projects to save treatment costs and still provide a recycled water which is safe for the uses stated in this section.

(b) The uses listed in this subsection are also new uses for recycled water, however, these uses have considerably less potential for public contact than the uses specified in subsection (a)

and thus do not require that same high level of treatment. The use of disinfected secondary-23 recycled water is allowed because the Department has determined that the probable risk of infection from the use of this type of recycled water for the listed uses are comparable to existing allowed uses for disinfected secondary-23 recycled water. Therefore, use of disinfected secondary-23 recycled water for these uses would not result in an unreasonable risk of infection to the public.

(c) Subsection (c) allows the use of undisinfected secondary recycled water to be used for the flushing of sanitary sewers. While this use has some potential for exposure or contact by the employees engaging in this activity, these employees are trained in the handling of untreated wastewater.

### **ARTICLE 3. USE AREA REQUIREMENTS**

#### **Section 60310. Use Area Requirements**

(a), (b), (c) These subsections would establish setbacks or buffer zones around domestic water supply wells to provide assurance that recycled water would not enter and potentially contaminate a domestic water supply well. These types of setbacks are currently common practice and are reflected in several state and local regulations with respect to septic tanks, leach fields, and wastewater disposal areas. Providing an appropriate distance from a well allows sufficient movement through the soil to eliminate the entry of pathogenic organism since the ability to travel through soil for such organisms is limited. The distances set forth in the proposed regulation varies dependent upon the degree of prior treatment of the recycled water. The distances established in this subsection were determined by the Department to represent an adequate degree of protection and are consistent with current guidelines and practices already in use.

With respect to use of disinfected tertiary recycled water, the Department has included language that allows the elimination of the 50 foot setback if specific mitigation measures are present and taken. The Department has determined that the combination of these factors provides an

equivalent degree of protection for disinfected tertiary recycled water and has already approved several such installations in recent years.

(d) This requirement would assure that recycled water used for the various purposes set forth in sections 60302 through 60306 would be confined to the designated area of use and not allowed to affect persons outside of the designated area. The Regional Water Quality Control Boards have developed "best management practices" to control certain runoff situations and occasionally allows runoff to occur subject to these practices. This would be allowable where this runoff is approved by the Boards in the establishment of water recycling requirements. Provisions are also added to assure that areas that have a high risk potential for possible contamination are not affected by drifting spray or runoff from use of a recycled water.

(e) This subsection would provide assurance that mist or spray from an irrigation project that uses recycled water, other than disinfected tertiary recycled water, does not come into contact with sensitive areas where children or other vulnerable members of the public may be exposed. A 100 foot setback was determined by the Department to be an adequate buffer against inadvertent spray drift based on the document "Review of Health Risks Related to Ingestion and Inhalation of Constituents of Recycled Water," Department of Health Services 1992.

(f) The purpose of this subsection would be to alert workers and members of the public that recycled water is being used in a particular area and that this water is considered unsafe for drinking. The purpose of requiring an international symbol in addition to the English wording of the signs would be to assure that persons who do not read or understand English would be properly alerted to avoid drinking the recycled water. This symbol is consistent with the symbol being used on a voluntary basis by several recycled water agencies. Use of wording in another language in lieu of the symbol would not be practical because of the multitude of languages that would have to be included. This approach has been included in guidance which the Department has used for several years in evaluating recycling facilities. Thus many existing facilities already conform. The Department does not believe that it is necessary to specify the size of the letters and symbol since recycling facilities operating under the guidance have created signs that

adequately display both the wording and the symbol without such specifications. However, the overall size of the sign is specified to establish the minimum dimensions necessary to catch the eye of anyone in the vicinity.

(g) Whenever recycled water is used in a piping system in a facility or area that also receives potable water by means of a separate piping system, a possibility for cross connections exists. Cross connections can allow unsafe water to be drawn back into and contaminate the potable drinking water supply. The purpose of these subsections would be to make it clear that no physical connections between the two systems is allowed (except as allowed under section 7604, title 17). Hose bibs provide an easy and quick means for intentionally or inadvertently creating such a physical connection by simple means of a double connected garden hose. The prohibition of hose bibs on the recycled water system would minimize this possibility. Provision has been allowed for use of detachable "quick couplers" which would not be available to the public or unknowledgeable workers.

#### **ARTICLE 4. DUAL PLUMBED RECYCLED WATER SYSTEMS**

##### **Section 60313. General Requirements**

Subsection (a). The proper oversight and daily management of a recycled water system that is utilized for dual plumbing is extremely important for public health protection. For example, failure to adequately monitor the quality of the recycled water, inspect the facilities for cross connections or properly test the systems could lead to serious contamination of the potable water supplies. Public water systems are already required to conduct and maintain comprehensive cross connection control programs and have the expertise needed to assure that potential contamination problems do not occur. In order to assure responsible oversight and operation of such a system, the Department has determined that it is necessary that the system be under the direct control of a public agency or a public water system. This subsection makes it clear that only such an agency may deliver recycled water to dual plumbed facilities.

Subsection (b) The purpose of subsection (b) would be to assure that certain types of facilities that have unusually high risk potential do not receive recycled water for indoor use. These

facilities include residential type facilities which are well defined in the Uniform Building Code and facilities that produce food or beverages such as food processing plants, restaurants, bottling plants, and similar establishments. The potential risk for food or beverage contamination with subsequent human ingestion is sufficiently great in the Department's opinion that these facilities should be excluded from the allowable internal use of recycled water via dual plumbed facilities. See also the discussion of section 60302 which is also applicable to this subsection.

Subsection (c) Section 13522.5 of the Water Code requires the submission of an engineering report to the State Regional Water Quality Control Board. Existing section 60323 (California Code of Regulations) already requires certain information to be included in the engineering report. Section 60323, however, focuses on the treatment of the recycled water and does not include the information necessary to evaluate a proposed dual plumbed facility. The purpose of this subsection would be to make it clear that additional information, as specified in section 60314, must be submitted as part of the required engineering report.

Since plumbing systems are extremely difficult and expensive to remove or modify after they have been installed, the requirement to submit the proposal prior to installation or construction is necessary.

#### **Section 60314. Report Submittal.**

The purpose of this section would be to make it clear what information must be submitted as part of the engineering report.

Subsection (a) sets forth the information that the Department has determined is necessary to evaluate the degree of health risk. The number, type, and location of each facility and type of use to be made of the recycled water is necessary to assure that the proposed method of distribution and plumbing layout is appropriate for the type of public or employee exposure that would be encountered at each facility. The number of persons served is necessary to determine the degree of overall risk since the more persons potentially exposed the greater the hazard and need for possible additional protective measures. The requirement for identification of the person

responsible for operation of the dual plumbed system at each facility is necessary to assure the agency and the Department that someone has been designated that responsibility and allows the agency to know whom to contact should any problems with the recycled water occur.

Subsection (a) (2) is necessary to provide the Department with the details of how the piping system would be constructed and installed. This information is necessary to assure that the potable water supply would not be subjected to unreasonable risk of cross connection or possible backflow.

The purpose of subsection (a) (3) would be to require the agency to describe how the provisions of sections 60315 and 30616 are proposed to be complied with. The description of these methods prior to construction of the project are necessary in order for the Department to make a reasonable judgment that the proposed system as planned to be operated by the agency would not pose unreasonable risks to public health. Since there are various methods available to test the integrity of the recycled water system, it is necessary for the agency to describe which method they propose to use so that the Department can properly evaluate the proposal and include any appropriate conditions in its approval.

Subsection (b) allows a project proponent to submit one report covering multiple facilities where this would be practical. Since not all facilities would necessarily be hooked up at the outset, the submission of plans and specifications for individual facilities covered by the report could be submitted at a later date prior to the actual hookup of the facility. The purpose of this subsection would be to simplify the report process and eliminate unnecessary paperwork.

#### **Section 60315. Design Requirements.**

Using the potable water system as a source of makeup water (to be used when the supply of recycled water may not be sufficient to maintain pressure and supply users) requires a direct connection between the two systems thus creating a potential serious hazard to the potable water system. The purpose of this subsection would be to allow for such a situation provided the potable water system is protected by an air gap assembly. This type of backflow protection is

similar and consistent with backflow requirements for similar hazardous conditions that are specified in sections 7602 and 7603 of the California Code of Regulations.

#### **Section 60316. Operation Requirements.**

Subsection (a) The purpose of this subsection would be to require that the dual plumbed system be inspected and tested initially for cross connections prior to use of the recycled water system. As discussed under several previous sections, a high potential for the creation of cross connections exists whenever a dual plumbed system is used. These cross connections can be inadvertently created after the system has been installed by unknowing workers or plumbers. A cross connection can go undetected for a period of time as long as there is not a drop in pressure in the potable water system. It is necessary, therefore, to periodically inspect the system to detect any visible cross connections that may have been created. The Department has determined that annual inspection of the system provides reasonable assurance of detection of cross connections and does not pose significant costs to the recycled water system. This is the same inspection frequency required of public water systems for backflow prevention devices. Some cross connections, however, may be buried or hidden behind walls and may not be visibly detectable. The Department has determined therefore, that the recycled water system should be tested by one of several means to detect leaks or cross connections. Some existing facilities have utilized the injection of dye into the recycled water system combined with a pressure drop in the potable system to detect cross connections. Other methods are also available. The proposed regulation allows the user to propose the method of testing to be used. The Department has determined that a physical test conducted at least every four years is a reasonable frequency to conduct such tests. More frequent would provide better assurance but would present unreasonable costs to the user. Less frequent could expose consumers to an unreasonable risk. This testing frequency has also been recommended by the California Ad-Hoc Dual Plumbing Committee (an independent informal panel established in 1993 by the Department of Water Resources and The Department of Health Services. See Appendix number 2 for membership listing.) for inclusion into section R-10 of the California Uniform Plumbing Code.



The type of inspection and testing required by this subsection is complex and requires someone who has been trained to evaluate cross connection hazards and conduct appropriate testing. The American Water Works Association tests and certifies cross connection control specialists on a voluntary basis. The Department has determined that a specialist thus certified would constitute an acceptable trained individual. The requirement for submission of a report to the Department would be to assure that the inspection and testing has been performed and completed.

Subsection (b) This subsection requires the agency to notify the Department whenever an actual backflow of recycled water to the potable water system has occurred. It is important for the Department to be notified of such an occurrence so that the degree of immediate risk of contamination may be evaluated and to allow the Department to determine if mitigation measures such as the issuance of a boil water notice to the public needs to be taken. Allowing 24 hours to notify the Department does not impose an unreasonable burden on the agency and allows the Department to react quickly to take additional steps to protect the public if necessary.

Subsection (c). This subsection would ensure that all cross connection control devices are installed and inspected according to the procedures established in regulation that cover specifics related to inspection and maintenance.

## **ARTICLE 6. SAMPLING AND ANALYSIS**

### **Section 60321. Sampling and Analysis.**

This section has been deleted and replaced with a new section 60321 that has been rewritten for better clarity. With the exception of the language regarding determination of compliance with the turbidity standard, the requirements of the proposed section 60321 are essentially the same as the existing section. The means of determining compliance with the turbidity requirement in the existing section 60321 is not clearly stated. As required in the existing section, turbidity analysis must be performed by a continuous recording turbidimeter. This results in a very large amount of turbidity data that cannot be conveniently incorporated into a compliance calculation, and is not necessary to assure adequate process performance. The proposed section 60321 would allow the

selection of a value each four hours from the continuous record to be used in the determination of compliance. This is consistent with the approach used in the drinking water filtration regulation (title 22, CCR, Division 4, chapter 17, section 64655). The monthly reporting of turbidity data is consistent with other water quality data reporting (CCR section 64451) and enables the regulatory agency to properly track the process performance.

New language would be adopted requiring the results of the daily turbidity compliance determinations to be submitted monthly to the regulatory agency. The current section 60321 is silent on the reporting frequency thus creating confusion. The Department has determined that monthly submittal of this data is sufficient for compliance determinations and oversight by the regulatory agency and that it would be unreasonable to require daily submittal. In addition, this reporting period is consistent with other reporting requirements administered by the Department's Drinking Water Program.

Subsection (c) simply clarifies who is responsible for conducting the sampling since the present section 60321 is silent on this point.

## **TITLE 17, DIVISION 1, CHAPTER 5**

### **ARTICLE 1**

#### **Section 7604. Type of Protection Required.**

This section has been reorganized to remove recycled water from the previous subsection (a) and create a new subsection for recycled water uses.

Existing subsection (a) (3) has been redesignated as (c) (2) and has been modified in order to be consistent with the changes made in title 22, Article 4, sections 60312 through 60316. The existing section 7604 requires an air gap for premises where recycled water is used except that under certain circumstances, an RP could be used instead of an air gap. Since these circumstances are covered under the changes to Article 4, there is no reason to continue to require an air gap,

therefore, the minimum requirement is now proposed as an RP and the special circumstance language stricken.

Subsection (c) (3) is added to make it clear that the requirement of subsection (c) (2) does not apply to individual residences that use recycled water for landscape irrigation. This would be an unreasonable requirement on individual homeowners and is not necessary as a result of the Article 4 changes. Instead subsection (c) (3) reduces the requirement from RP devices to double check valves for approved dual plumbed use areas. This change is appropriate because of the additional safety factors built in as a result of proposed sections 60312 through 60316. Since a project proponent has the option to include additional backflow prevention measures in the project proposal, allowance has been made to use an alternative backflow prevention plan where the local water utility is satisfied that the alternative plan provides equivalent protection for their potable water system. The Department would review and approve the alternative plan in those instances where the public water supply utility is also the recycled water supplier to avoid a utility from approving its own plan.

Similarly, subsection (d) (4) modifies existing subsection (c) to make it clear that dual plumbed facilities that use potable water for fire protection within buildings and recycled water in a separate piping system for external use are allowed to install double check valves in lieu of an RP device